

ABSTRACT

A method and system are disclosed that can be applied to achieve high-throughput in a WLAN. Central to the present invention is the use of an SDMA compatible multi-beam antenna system by a WLAN access point. A system based on two types of antennas—dynamic beam forming and fixed beam antennas—is described. A mechanism and protocol are described that implement simultaneous transmissions with respect to an SDMA compatible access point and thereby improve spectral efficiency, and by extension achieve higher throughput. Based on the recognition that current WLAN MAC has major limitations in throughput, certain MAC extensions (that can be applied independently of SDMA) are described. Also disclosed are power-saving and power control techniques that improve battery performance and contribute to a reduction in station size, and a means of reducing channel interference. The present invention also deals with the problem of backward compatibility with conventional devices that implement the protocol that is a subset covered by the present invention.